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ABSTRACT

Testing organizations have recently been scrutinized because of the perception that affluent, white male students from the northeast are falsely claiming disabilities to gain extended time on standardized tests for college admission. In response to these assertions, the percentage of learning disabled test takers on the SAT I: Reasoning Test is examined in relation to geographic region, racial/ethnic group, sex, and parental income level. High school students who took the test between April 1997 and March 1998 were included in the analysis, for a total of 735,825. Results indicate that as parental income increases, the percentage of learning disabled test takers increases for Asian, African-American, Hispanic, and White examinees. Geographic region also appears to have some impact on the percentage of learning disabled test takers. Although significantly different, gender differences appear proportionate to previous research on learning disabilities. Since test scores taken with an accommodation are identified with an asterisk or "flag," the opinions of 189 guidance counselors, 111 admissions officers, and 85 college disability service providers about the use of the flag were examined. No geographic patterns were evident in relation to opinions regarding removal of the flag or increases in the number of flagged test scores. (Author/SLD)

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Clusters of Learning Disabled Test Takers in the United States

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Educational Testing Service

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Abstract

Testing organizations have recently been scrutinized for the perception that affluent, white, male students from the northeast are falsely claiming disabilities to gain extended time on standardized tests for college admission. In response to these assertions, the percentage of learning disabled test takers on the SAT I: Reasoning test is examined in relation to geographic region, racial/ethnic group, sex, and parental income level. Results indicate that as parental income increases the percentage of learning disabled test takers increases for Asian, African-American, Hispanic, and White examinees. Geographic region also appears to have some impact on the percentage of learning disabled test takers. Although significantly different, gender differences appear proportionate to previous research on learning disabilities. Since test scores taken with an accommodation are identified with an asterisk (or 'flag'), perceptions of guidance counselors, admissions officers, and college disability service providers were examined. No geographic patterns were evident in relation to opinions regarding removal of the flag or increases in the number of flagged test scores.

Background

The popular press has been focussing on accommodations for test takers in recent years (L.A. Times, 3/1/00 & 1/9/00; Star-Ledger, 8/15/99). Claims have been made that affluent parents have been seeking a classification of learning disabled for their children so they can take the SAT with extended time and/or other special accommodations. In response to these claims, California state Senator Richard Alarcon (D) has introduced a bill that would prohibit all public and private schools from approving applications for special accommodations (due to a disability) on the SAT. The bill states that the legislature intends that the College Board should be requested to evaluate all applications as an objective third party. The Los Angeles Times (3/1/00) reported that Senator Alarcon believes a recent rise in accommodations amongst affluent White test takers is the result of schools' fears of lawsuits for refusing to grant an accommodation. Even with the recent rise, the number of test takers that receive accommodations for learning disabilities is substantially smaller than the percentage of students who receive services for a learning disability in school. The U.S. Department of Education reported that 4.19 percent of children ages six through twenty-one are served under the Individuals with Disabilities Education Act (IDEA) for a specific learning disability. (17th Annual Report to Congress on the Implementation of the IDEA). The American Council on Education reported that 3.52% of college freshman reported having a learning disability in 1998 (Henderson, 1999). In contrast, learning disabled test takers made up only 1.5% of the high school students graduating in 1998 and taking the SAT I between April 1997 and March 1998.

Previous research indicates that significantly more boys are diagnosed with a learning disability (Berrninger & Fuller, 1992; Irving, 1995). If more boys are diagnosed in elementary and middle school, it is likely that the percentage of male learning disabled test takers will be greater than the percentage of female learning disabled test takers and college freshman. In 1998, approximately 58% of learning disabled college freshman were men (Henderson, 1999). A relationship between learning disability and geographic area, parental income level, and racial/ethnic group has not been established.

The media has speculated that affluent parents are under the impression that an accommodation will help their child earn a better score on the SAT, thereby increasing the chance of admission to a competitive college. Yet other parents may feel that an accommodation would disadvantage their child. When a disabled student takes a standardized test with an accommodation (or under nonstandard condition) the test score is reported with an asterisk. This asterisk is commonly referred to as a 'flag'.
To determine a general consensus regarding the 'flag' it is important to explore the perspective of high school guidance counselors as well as college admissions officers and disability service providers across the country.

The purpose of this study is to examine geographic and socio-economic variables in relation to the proportion of students taking the SAT I: Reasoning Tests with an accommodation for a learning disability. In addition potential explanations for findings will be explored and survey data from high school guidance counselors, admissions personnel, and college disability service providers will be examined. Survey data will be examined by geographic region to determine if trends in the percentage of accommodations are related to any perceptions of bias.

Methods

Subjects

Student data. All high school students who took the SAT (between April, 1997 and March, 1998), attended a high school in the United States, and expected to graduate in 1998 were included in analyses. The percentage of learning disabled test takers was analyzed by the following background variables; Parent income level, race, gender, and region of the country. All variables were self-reported and student who did not answer the four background questions were excluded from analyses. Of the 735,825 test takers with background information, approximately 60 percent had previously taken the SAT I. Analyses were conducted on the most recent administration.

Professional data. In addition to data on test takers, survey responses from guidance counselors, admissions officers, and college disability service providers were

analyzed by the six geographic regions. Guidance counselors were asked to report what region of the country they worked in, while region information was only provided by admissions officers and disability service providers who were interested in participating in future studies. Therefor the percentage of usable surveys was substantially larger for the guidance counselors. A total of 189 guidance counselors (90% of returned surveys), 111 admissions officers (63% of returned surveys), and 85 disability service providers (58% of returned surveys) provided regional data information with their survey response.

Procedures

Student. The SAT I: Reasoning test data was analyzed by computing Pearson Chi-squares for learning disability status by race, gender, geographic region, and parental income level. In order to explore interactions between geographic region and parental income level, scales were compressed to six regions and four parental income levels. States were divided into the following six geographic regions; New England (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont), Mid-Atlantic (Delaware, District of Columbia, Maryland, New Jersey, New York, and Pennsylvania), South (Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia), Midwest (Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, West Virginia, and Wisconsin), Southwest (Arkansas, New Mexico, Oklahoma, and Texas), and West (Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming). Parent income level was recoded into four categories (less than $25,000, between $25,000 and $50,000, between $50,000 and $80,000, and more than $80,000). The original scale contained 13 categories from 'less than $10,000' to 'more than $100,000'. The compressed region and parent income scales, along with race/ethnicity, sex, and learning disability status were used in a hierarchical loglinear model to test for interactions. Interactions were explored using 2x2 Pearson chi-square tests.

Professional. Analysis of the differences (by region) between professional opinion focused on three questions in the surveys. The first question asked if the flag should be removed from scores administered under non-standard conditions. A second question

asked the guidance counselors and admissions officers if they observed changes in the percentage of disabled students. The final question examines how the presence of a flagged test score impacts admissions decisions. A more in depth description of survey procedures and analyses can be found in Mandinach (2000).

Results

Patterns within test takers.

It is important to keep in mind that when computing analyses for a large data file some statistical difference may be relatively small practical differences. In this study statistically significant findings were found with small practical difference in percentage of learning disabled test takers between subgroups. For example a difference of 0.1 percent was statistically significant (X^2 (1, N=239,862) = 10.95 $p < .001$) when examining differences in the percent of learning disabled test takers by region (Midwest vs. West). In response to this significant differences were determined when $p \leq .01$. Even though practical differences may be small several patterns were found when examining differences with larger chi-square values.

Parent Income. Preliminary analyses examined the percentage of LD test takers in each of the thirteen parent income levels. Table 1 displays descriptive statistics that indicate the percentage of LD test takers increased from a low of 0.6% of students who's parents income is less than $10,000 to a high of 2.4% of test takers who's parents income is greater than $100,000. Table 2 displays the compressed scale used for interaction analyses. A Pearson chi-square test revealed a significant difference between the percentage of learning disabled test takers and the four compressed parental income levels (X^2 (3, N=735,825) = 1537.86 $p < .001$). Individual chi-square test revealed four significantly different groups. Test takers with parental income less than $25,000 have a significantly lower percentage of LD test takers than those that make $25,000 to $50,000 ($X^2$ (1, N=360,216) = 64.69 $p < .001$). Test takers with parental income from $25,000 to $50,000 have a significantly lower percentage of LD test takers than those that make $50,000 to $80,000 ($X^2$ (1, N=434,223) = 60.85 $p < .001$), and test takers with parental

income from $50,000 to $80,000 have a significantly lower percentage of LD test takers than those that make over $80,000 ($X^2$ (1, N=375,609) = 500.59 $p < .001$). This dramatic jump in chi-square value (61, 65, and 501) when comparing examinees in the largest parental income bracket may indicate a more meaningful difference.

Gender. Consistent with previous research, the percentage of learning disabled test takers was significantly higher for male examinees than female examinees (X^2 (1, N=735,825) = 943.92 $p < .001$) (see Table 3). Differences between the percent of male and female test takers with a LD accommodation were found in each racial/ethnic group and each geographic region. No linear patterns were evident when examining gender differences by parental income level.

Racial/Ethnic. A chi-square test between learning disability (LD) status and racial groups revealed a significant difference between racial groups (X^2 (3, N=735,825) = 1213.68 $p < .001$). As Table 4 indicates, White examinees have the largest relative percentage of learning disabled test takers. Pearson chi-square tests were conducted to compare the difference between racial/ethnic groups. The test revealed significant differences between all four groups; Whites examinees had a larger percentage of LD test takers when compared to Blacks (X^2 (1, N=614,373) = 338.62 $p < .001$), Blacks were significantly higher than Hispanics (X^2 (1, N=139,247) = 7.40 $p < .01$), and Hispanics were significantly higher than Asians (X^2 (1, N=121,452) = 76.58 $p < .001$). The chi-square value for the Hispanic versus Blacks comparison was very small and represents an actual difference of only 0.1 percent.

For all four racial/ethnic groups a disproportionate number of LD test takers were located in the New England and Mid-Atlantic states, male, and had parental incomes levels greater than $80,000. When examining test takers with parental income levels greater than $80,000, White, African-American, and Asian test takers had twice the expected percentage of learning disabled test takers. For Hispanics the percentage rate tripled; 9.9% of Hispanics had parental income levels over $80,000, while 28.8% of learning disabled test takers had parental income levels over $80,000.

Geographic Region. A Pearson chi-square test comparing all six region indicated a significant difference in the percentage of learning disabled test takers by region (X^2 (5,

N=735,825) = 2553.87 p < .001). As table 5 indicates, four geographic regions (New England, Mid-Atlantic, South, and Midwest) have increasingly larger representations of learning disabled test takers. Individual chi-square test indicated that no significant difference exists between the percentage of learning disabled test takers in the Southwest and West. Although a significant difference was found between the West and Midwest , the difference was small (0.1%), as reflected by the chi-square value (X^2 (1, N=239,862) = 10.95 p < .001). The largest chi-square value was found when comparing the region with the smallest percent of learning disabled test takers (Southwest, 0.6%) with the region with the largest percent (New England, 2.5%) (X^2 (1, N=138,538) = 867.62 p < .001). These repeated chi-square analyses indicated that no significant differences existed in the percentage of learning disabled test takers in the Southwest and West however the Midwest is significantly higher than the West and Southwest, the South is significantly higher than the Midwest (X^2 (1, N=241,247) = 27.02 p < .001), the Middle Atlantic region is significantly higher than the South (X^2 (1, N=357,193) = 481.60 p < .001), and New England is significantly higher than the Middle Atlantic region (X^2 (1, N=265,814) = 130.46 p < .001).

Loglinear model

Comparisons between the percentage of learning disabled test takers by sex, parental income levels, racial/ethnic groups, and geographic regions revealed several tendencies. In order to examine interactions between these variables a loglinear analysis procedure was used. After randomly splitting the data file a hierarchical model selection loglinear analysis procedure was used to analyze multiway crosstabulations (contingency tables) which included a compressed parental income scale (I), sex (S), race/ethnicity (R), learning disability status (L), and geographic region (G) was computed to produce a final model of interactions. A four-way interaction between learning disability status, parental income level, race/ethnicity, and geographic region (ILGR) was found as well as several three way interactions (ILS, LRS, IRS, GRS). When these interactions were tested on the second random half of the student data file, the model was supported. Examination of crosstabulations for the percent of learning disabled test takers based within these interactions revealed several suspected patterns as well as some surprises.

Income by Learning by Geographic Region, by Race/Ethnicity. Crosstabulations were computed to examine the four-way interaction between learning disability status, geographic region, race/ethnicity, and parental income level (see Table 6) and the percent of learning disabled test takers was graphed (see Appendix A). Several patterns exist across all (or nearly all) subgroups. In all six regions the percentage of learning disabled test takers is greatest in the highest income bracket (more than $80,000). In addition most regions show the smallest percentage of learning disabled test takers (at all income levels) to be Asian. In addition White examinees had the largest percent of learning disabled test takers for examinees with parental income levels below $25,000 and between $25,000 and $50,000 in all geographic regions.

In the higher income levels ($50,000 to $80,000 and more than $80,000) Hispanics had the largest percentage of LD test takers in New England and the Mid-Atlantic states. Hispanics were also the largest percentage in the Midwest for test takers with parental incomes greater than $80,000. It appears that the four way interaction identified in the loglinear model may be the result of a changing pattern in the percentage of learning disabled Hispanics by parental income level between different geographic regions. When White and Hispanic students from New England with parental income levels over $80,000 were compared the odds ratios indicated that Hispanic students were almost twice (1.9) as likely to take the SAT I with an accommodation for a learning disability. At lower income levels (less than $25,000) White students were more than ten times (10.8) more likely to take the test with an accommodation. In the West region, Whites were 2.4 times more likely to test with and accommodation at the lowest parental income level and 1.9 times more likely to test with an accommodation at the highest income level, when compared to Hispanic test takers. To a lesser degree, the Mid-Atlantic and Midwest regions follow the same pattern as New England, while the Southwest and South are similar to the West region.

Income by Sex. In the loglinear model describe earlier an interaction was found when comparing learning disability status, sex, and parental income level (ILS). This interaction was examined using chi-square tests for LD status by income level within sex and LD status by sex within income level. In all situations a significant difference was

found by sex for each income level (less than $25,000, X^2 (1, N=135616) = 66.94 p < .001), $25-50,000, X^2 (1, N=224600) = 265.01 p < .001); $50-80,000, X^2 (1, N=209,623) = 273.79 p < .001); and more than $80,000, X^2 (1, N=165,986) = 217.94 p < .001) and by income level for males (X^2 (3, N=332951) = 726.50 p < .001) and females (X^2 (3, N=402874) = 692.34 p < .001). However comparisons by sex within the lowest income level (less than $25,000) had a smaller chi-square value and the difference in percentage of male and female learning disabled test takers was .36 compared with the three higher levels (.64, .75, and 1.01). Even with the increasing difference in percentage the odds ratio is relatively consistent, with males being 1.7 to 2.1 times more likely to be learning disabled.

Racial/Ethnic by Sex. A third interaction identified by the loglinear model was learning disability status by racial/ethnic group by sex (LRS). This interaction was examined using chi-square analyses for LD status by racial/ethnic group within sex and LD status by sex within racial/ethnic group. No significant difference was found when examining the difference between the percentage of Asian, learning disabled, test takers by sex. Significant differences were found in the three other racial groups (Blacks X^2 (1, N=81,504) = 176.46 p < .001; Hispanics X^2 (1, N=57,743) = 12.40 p < .01; and Whites X^2 (1, N=532,869) = 754.63 p < .001). Odds ratios comparing male and female test takers within racial/ethnic group indicate that African American males are more than 3 times (3.3) as likely to take the test with an accommodation. White, Hispanic and Asian test takers had odds ratios ranging from 1.5 to 1.9. Analyses by racial/ethnic group within gender showed significant differences for both males (X^2 (3, N=332,951) = 692.56 p < .001) and females (X^2 (3, N=402,874) = 506.30 p < .001). A similar pattern was found for both male and female test takers. For both males and females, Asians had the lowest percentage of learning disabled test takers, Blacks were significantly higher than Hispanics for male test takers (X^2 (1, N=56,941) = 31.12 p < .001) but not female test takers, and Whites were the largest percentage of learning disabled test takers.

Patterns within professionals.

Removal of the Flag. Survey responses were relatively stable between regions of the country (see Table 7). Although the three surveys varied, guidance counselors,

admissions officers, and disability service providers were all asked if they thought the flag designating a non-standard administration should remain or be removed from test scores sent to colleges and universities. None of the ten guidance counselors in the southwest region reported that the flag should be removed. Yet 3 of the 4 admissions officers were in favor of removing the flag. All other regions were relatively consistent with 14 to 23 percent of guidance counselors and 14 to 29 percent of admissions officers reporting the flag should be removed. Disability service providers took the opposite stance with regions ranging from 50 to 75 percent of providers reporting that the flag should be removed. Disability Service providers were more evenly split in the Midwest and Mid-Atlantic states where 50 and 54 percent, respectively, felt the flag should be removed. In the West and Southwest 60 to 63 percent of providers felt the flag should be removed while the same thought was echoed by 70 and 75 percent of providers in New England and the South region.

Increasing numbers of disabled students. Although the questions varied, both admisions officers and guidance counselors were asked to rate the growth in the number of applicants with flagged test scores (admissions), learning disabilities (guidance), and requests for accommodation (guidance). In all six regions a majority of the admissions officers reported a small increase in the number of applicants with test scores flagged for a non-standard administration. Guidance counselors in the Mid-Atlantic and Western states reported the largest increase in disabilities. Eighty-five percent of the guidance counselors in Mid-Atlantic states reported an increase in disabilities of 10 percent or more, while 86.7 percent of counselors in Western states reported an increase of 10 percent or more. In the other four regions, approximately 62 to 69% of guidance counselors reported increases of 10 percent or more. When responses were compared the increase in disabilites was slightly larger than the increase in accommodation requests. See Figure 1. These findings indicate that disability identification is a driving force in the rise in the number of students receiving accommodations.

Perceived bias in admissions. A small number (11-21%) of guidance counselors in each region reported that the presence of the flag would increase a students chances of admissions. A larger proportion (11-43%) predicted the flag would decrease a student's

chance of admissions. In West, Midwest, and Southwest a smaller percentage of guidance counselors felt the flag would decrease the chance of admissions (11, 27, and 29 percent, respectively). While a greater percent of guidance counselors in the Mid-Atlantic, New England, and South regions felt the flag would disadvantage a student (41, 32, and 43 percent respectively). Admissions officers were stated that the flag had no impact on the admissions decision. In the South and Southwest, 95 and 100 percent respectively stated the flag had no impact on admissions decisions. Seventy-four percent of admissions officers in New England reported the flag to have no impact, while 82-85% of admission officers in the Mid-Atlantic, Midwest, and West regions felt their was no impact. In all regions, the majority of admissions officers who reported an impact felt the flag increased the student's chance of admission. A similar pattern was found with college disability service providers with one exception. In the South and Southwest regions a larger proportion of disability service providers did not answer because they were unaware of the admissions policy towards flagged test scores.

Conclusion

Based on the survey responses and SAT I data, it does not appear that admissions policies are driving the increase in the number of flagged test scores. Although few admissions officers reported that a flag decreases a student's chances of admissions, most of those that did were located in New England or the Mid-Atlantic region, areas with the largest proportion of learning disabled test takers. In addition guidance counselors in the New England, Mid-Atlantic and South regions were more likely to feel a flagged test score would decrease a student's chance of admission. One possible explanation for these responses is that the northeast regions have a larger proportion of flagged test scores which has fueled media speculation and a lack of trust that the flagged test score represents a true disability.

Taken in isolation, the earlier media speculations that affluent, White, males from the Northeast are falsely claiming to be learning disabled may appear valid. However when interactions are examined it appears that parental income and geographic region are more important than racial/ethnic group or gender in finding clusters of learning disabled

test takers. Odds ratios indicate that White students are not always more likely to take the SAT I with an accommodation for a learning disability and geographic region and parental income level may play a role in this. As was reported earlier, the number of learning disabled test takers is much lower than the percentage of college freshman who reported being learning disabled. This discrepancy may be due to cultural attitudes and/or a lack of information in specific geographic areas and parental income levels. Rather than assuming that affluent test takers from the Northeast are given accomodations in excess, the focus should be on why less affluent test takers from other regions of the country do not apply for accommodations.

There were several limitations to this study. With the exception of learning disability status, all variables were self reported and are susceptible to inaccuracies. Sex and geographic region are less likely to be inaccurate because student have no motivation to alter their attending institution code or gender. However it is possible that students may be inaccurate or stretch the truth when reporting parental income level and race/ethnicity due to a lack of knowledge, fear of discrimination or hope for financial aid. Another limitation is the large sample size, which allows for the identification of significant differences from small practical differences. Findings should be examined with the understanding that small actual differences may not be practically significant.

Although the loglinear model produced several interactions that can explain higher proportions of learning disabled test takers in specific regions, ethnic/racial groups, and income levels the reasons for these findings are still unknown. Future research should examine groups with higher and lower proportions of learning disabled test takers to determine reasons for these findings and determine if the self reported background data is accurate.

References

Berringer, V. W., & Fuller, F. (1992). Gender differences in orthographic, verbal, and compositional fluency: Implications for assessing writing disabilities in primary grade children. Journal of School Psychology, 30, 363-382.

Henderson, C. (1999). College Freshman with Disabilities: Statistical Year 1998. Washington, DC: American Council on Education.

Heyboer, K., & McCarron, B. (1999, August 15). 'Joining the club': Claim a disability, get an edge in SATs. Star-Ledger, pp. A1-A2.

Irving, K. L. (1995) A survey of practitioners who diagnose, treat, and assess children and adolescents with nonverbal learning disability. Dissertation abstract California School of Professional Psychology-Berkley.

Weiss, K. R. (2000, January 9). New test-taking skill: Working the system. Los Angeles Times, p. A1.

Weiss, K. R. (2000, March 1). Bill Targets Special Treatment for SAT Test-Takers. Los Angeles Times, p. Metro Section.

Table 1: Descriptive statistics for LD test takers by parent income level

Parent Income	Mean	N	SD
$< 10,000	.006	32,165	.079
$10,000-15,000	.006	31,794	.076
$15,000-20,000	.006	32,868	.078
$20,000-25,000	.007	38,789	.081
$25,000-30,000	.009	41,962	.092
$30,000-35,000	.008	44,193	.090
$35,000-40,000	.008	53,799	.089
$40,000-50,1000	.009	84,646	.097
$50,000-60,000	.010	84,150	.099
$60,000-70,000	.011	67,484	.105
$70,000-80,000	.013	57,989	.111
$80,000-100,000	.014	70,853	.118
> $100,000	.024	95,133	.154
Total	.011	735,825	.106

Table 2: Compressed parental income scale used for analyses

Parent Income Level	Mean	N	SD
> $10,000 to $25,000	$.006_a$	135,616	.079
$25,000 to $50,000	$.009_b$	224,600	.093
$50,000 to $80,000	$.011_c$	209,623	.104
$80,000 to < $100,000	$.020_d$	165,986	.140
Total	.011	735,825	.106

Note: Means in the same row that do not share subscripts are significantly different based on 2x2 chi-square analyses ($p < .001$).

Table 3: Descriptive statistics for LD test takers by gender

SEX	Mean	N	SD
Male	.016	332,951	.124
Female	.008	402,874	.089
Total	.011	735,825	.106

Table 4: Descriptive statistics for LD test takers by racial/ethnic group

Race/Ethnicity	Mean	N	SD
Asian	$.002_a$	63,709	.046
African-American	$.006_b$	81,504	.078
Hispanic/Latino	$.005_c$	57,743	.071
Caucasian (not Hispanic)	$.014_d$	532,869	.117
Total	.011	735,825	.106

Note. Means in the same row that do not share subscripts are significantly different based on 2x2 chi-square analyses ($p < .01$)

Table 5: Descriptive statistics for LD test takers by geographic region in U.S.

Region from ai_code	Mean	N	SD
New England	$.025_a$	64,386	.155
Mid-Atlantic	$.017_b$	201,510	.131
South	$.009_c$	155,780	.094
Midwest	$.007_d$	85,540	.083
West	$.006_e$	154,407	.076
Southwest	$.006_e$	74,202	.075
Total	.011	735,825	.106

Note. Means in the same row that do not share subscripts are significantly different based on 2x2 chi-square analyses ($p < .001$)

Table 6. Four-way interaction data and odds ratio compared to White examinees with same parental income, race/ethnicity, and region

						Odds ratio	
Geographic Region	Race/ Ethnicity	Parental Income	LD	Not LD	conditional odds ratio	White to Minority	Minority to White
Mid-Atlantic	White	$25-50,000	748	47428	63.41		
Mid-Atlantic	Hispanic	$25-50,000	27	2273	84.19	1.33	0.75
Mid-Atlantic	Black	$25-50,000	74	8427	113.88	1.80	0.56
Mid-Atlantic	Asian	$25-50,000	11	3621	329.18	5.19	0.19
Mid-Atlantic	White	$50-80,000	922	47571	51.60		
Mid-Atlantic	Hispanic	$50-80,000	27	1082	40.07	0.78	1.29
Mid-Atlantic	Black	$50-80,000	39	4019	103.05	2.00	0.50
Mid-Atlantic	Asian	$50-80,000	15	2723	181.53	3.52	0.28
Mid-Atlantic	White	< $25,000	275	20323	73.90		2.47
Mid-Atlantic	Hispanic	< $25,000	37	4466	120.70	1.63	0.61
Mid-Atlantic	Black	< $25,000	85	10394	122.28	1.65	0.60
Mid-Atlantic	Asian	< $25,000	11	4493	408.45	5.53	0.18
Mid-Atlantic	White	> $80,000	1157	35849	30.98		
Mid-Atlantic	Hispanic	> $80,000	29	773	26.66	0.86	1.16
Mid-Atlantic	Black	> $80,000	44	2036	46.27	1.49	0.67
Mid-Atlantic	Asian	> $80,000	21	2510	119.52	3.86	0.26
Midwest	White	$25-50,000	119	19998	168.05		
Midwest	Hispanic	$25-50,000	3	563	187.67	1.12	0.90
Midwest	Black	$25-50,000	4	2043	510.75	3.04	0.33
Midwest	Asian	$25-50,000	3	1124	374.67	2.23	0.45
Midwest	White	$50-80,000	149	24509	164.49		
Midwest	Hispanic	$50-80,000	1	424	424.00	2.58	0.39
Midwest	Black	$50-80,000	2	1326	663.00	4.03	0.25
Midwest	Asian	$50-80,000	1	1190	1190.00	7.23	0.14
Midwest	White	< $25,000	44	5954	135.32		
Midwest	Hispanic	< $25,000	1	327	327.00	2.42	0.41
Midwest	Black	< $25,000	6	2060	343.33	2.54	0.39
Midwest	Asian	< $25,000	1	615	615.00	4.54	0.22
Midwest	White	> $80,000	243	22300	91.77		
Midwest	Hispanic	> $80,000	5	321	64.20	0.70	1.43
Midwest	Black	> $80,000	4	797	199.25	2.17	0.46
Midwest	Asian	> $80,000	3	1400	466.67	5.09	0.20
New England	White	$25-50,000	400	17807	44.52		
New England	Hispanic	$25-50,000	1	363	363.00	8.15	0.12
New England	Black	$25-50,000	15	939	62.60	1.41	0.71
New England	Asian	$25-50,000	5	789	157.80	3.54	0.28
New England	White	$50-80,000	425	17770	41.81		
New England	Hispanic	$50-80,000	13	202	15.54	0.37	2.69
New England	Black	$50-80,000	13	402	30.92	0.74	1.35
New England	Asian	$50-80,000	6	500	83.33	1.99	0.50
New England	White	< $25,000	125	7388	59.10		
New England	Hispanic	< $25,000	1	639	639.00	10.81	0.09
New England	Black	< $25,000	30	1352	45.07	0.76	1.31
New England	Asian	< $25,000	2	1012	506.00	8.56	0.12
New England	White	> $80,000	523	12736	24.35		
New England	Hispanic	> $80,000	12	158	13.17	0.54	1.85
New England	Black	> $80,000	6	212	35.33	1.45	0.69
New England	Asian	> $80,000	8	532	66.50	2.73	0.37

						Odds ratio	
Geographic Region	Race/ Ethnicity	Parental Income	LD	Not LD	conditional odds ratio	White to Minority	Minority to White
South	White	$25-50,000	236	33517	142.02		
South	Hispanic	$25-50,000	10	2228	222.80	1.57	0.64
South	Black	$25-50,000	43	10723	249.37	1.76	0.57
South	Asian	$25-50,000	3	2525	841.67	5.93	0.17
South	White	$50-80,000	318	36247	113.98		
South	Hispanic	$50-80,000	11	1417	128.82	1.13	0.88
South	Black	$50-80,000	27	4924	182.37	1.60	0.63
South	Asian	$50-80,000	8	1576	197.00	1.73	0.58
South	White	< $25,000	73	11590	158.77		
South	Hispanic	< $25,000	6	2011	335.17	2.11	0.47
South	Black	< $25,000	33	13033	394.94	2.49	0.40
South	Asian	< $25,000	6	1818	303.00	1.91	0.52
South	White	> $80,000	573	28671	50.04		
South	Hispanic	> $80,000	17	1085	63.82	1.28	0.78
South	Black	> $80,000	13	1771	136.23	2.72	0.37
South	Asian	> $80,000	5	1262	252.40	5.04	0.20
Southwest	White	$25-50,000	75	13083	174.44		
Southwest	Hispanic	$25-50,000	3	5289	1763.00	10.11	0.10
Southwest	Black	$25-50,000	6	2883	480.50	2.75	0.36
Southwest	Asian	$25-50,000	0	1520	#DIV/0!	#DIV/0!	#DIV/0!
Southwest	White	$50-80,000	77	14512	188.47		
Southwest	Hispanic	$50-80,000	8	2756	344.50	1.83	0.55
Southwest	Black	$50-80,000	3	1452	484.00	2.57	0.39
Southwest	Asian	$50-80,000	1	994	994.00	5.27	0.19
Southwest	White	< $25,000	21	4404	209.71		
Southwest	Hispanic	< $25,000	9	6700	744.44	3.55	0.28
Southwest	Black	< $25,000	13	3402	261.69	1.25	0.80
Southwest	Asian	< $25,000	1	1249	1249.00	5.96	0.17
Southwest	White	> $80,000	192	12993	67.67		
Southwest	Hispanic	> $80,000	4	1304	326.00	4.82	0.21
Southwest	Black	> $80,000	6	516	86.00	1.27	0.79
Southwest	Asian	> $80,000	0	726	#DIV/0!	#DIV/0!	#DIV/0!
West	White	$25-50,000	127	26002	204.74		
West	Hispanic	$25-50,000	18	7488	416.00	2.03	0.49
West	Black	$25-50,000	8	2838	354.75	1.73	0.58
West	Asian	$25-50,000	3	9187	3062.33	14.96	0.07
West	White	$50-80,000	200	29039	145.20		
West	Hispanic	$50-80,000	19	3888	204.63	1.41	0.71
West	Black	$50-80,000	10	1626	162.60	1.12	0.89
West	Asian	$50-80,000	6	7173	1195.50	8.23	0.12
West	White	< $10,000	30	9157	305.23		
West	Hispanic	< $10,000	13	9652	742.46	2.43	0.41
West	Black	< $10,000	16	2991	186.94	0.61	1.63
West	Asian	< $10,000	5	9742	1948.40	6.38	0.16
West	White	> $80,000	408	26561	65.10		
West	Hispanic	> $80,000	17	2042	120.12	1.85	0.54
West	Black	> $80,000	3	835	278.33	4.28	0.23
West	Asian	> $80,000	8	5295	661.88	10.17	0.10

Table 7. Opinion regarding the keeping or removing the flag.

Region	Keep						Remove						Don't Know				Unclear due to survey error	
	Guidance Counselor		Admissions Officer		Disability Service Provider		Guidance Counselor		Admissions Officer		Disability Service Provider		Guidance Counselor		Admissions Officer		Disability Service Provider	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%			N	%
1 New England	18	66.67	15	71.43	3	30.00	6	22.22	6	28.57	7	70.00	3	11.11			0	0.00
2 Mid Altantic	21	72.41	18	72.00	5	35.71	5	17.24	7	28.00	7	50.00	3	10.34			2	14.29
3 South	21	52.50	19	86.36	3	15.00	9	22.50	3	13.64	15	75.00	10	25.00			2	10.00
4 Midwest	31	58.49	16	94.12	2	15.38	10	18.87	1	5.88	7	53.85	12	22.64			4	30.77
5 West	20	71.43	18	81.82	6	30.00	4	14.29	4	18.18	12	60.00	4	14.29			2	10.00
6 Southwest	10	83.33	1	25.00	2	25.00	0	0.00	3	75.00	5	62.50	2	16.67			1	12.50
Total	121	64.02	87	78.38	21	24.71	34	17.99	24	21.62	53	62.35	34	17.99			11	12.94

Table 8. Impact of flag on chance of admissions.

		Chance of admissions									
		Increase		No Impact		Decrease		Other		Total	
Region	Professional	N	%	N	%	N	%	N	%	N	%
New England	Guidance	5	17.86	8	28.57	9	32.14	6	21.43	28	100.00
	Admissions	2	8.70	17	73.91	1	4.35	3	13.04	23	100.00
	Disability Service	0	0.00	10	90.91	0	0.00	1	9.09	11	100.00
Mid-Atlantic	Guidance	6	17.65	11	32.35	14	41.18	3	8.82	34	100.00
	Admissions	2	7.69	22	84.62	1	3.85	1	3.85	26	100.00
	Disability Service	0	0.00	12	92.31	1	7.69	0	0.00	13	100.00
South	Guidance	5	11.90	12	28.57	18	42.86	7	16.67	42	100.00
	Admissions	1	4.55	21	95.45	0	0.00	0	0.00	22	100.00
	Disability Service	1	5.00	14	70.00	1	5.00	4	20.00	20	100.00
Midwest	Guidance	6	10.71	20	35.71	15	26.79	15	26.79	56	100.00
	Admissions	3	16.67	15	83.33	0	0.00	0	0.00	18	100.00
	Disability Service	1	8.33	10	83.33	1	8.33	0	0.00	12	100.00
Southwest	Guidance	3	21.43	5	35.71	4	28.57	2	14.29	14	100.00
	Admissions	0	0.00	4	100.00	0	0.00	0	0.00	4	100.00
	Disability Service	1	5.00	13	65.00	2	10.00	4	20.00	20	100.00
West	Guidance	6	21.43	14	50.00	3	10.71	5	17.86	28	100.00
	Admissions	2	9.09	18	81.82	1	4.55	1	4.55	22	100.00
	Disability Service	0	0.00	7	100.00	0	0.00	0	0.00	7	100.00
Total	Guidance	31	15.35	70	34.65	63	31.19	38	18.81	202	100.00
	Admissions	10	8.70	97	84.35	3	2.61	5	4.35	115	100.00
	Disability Service	3	3.61	66	79.52	5	6.02	9	10.84	83	100.00

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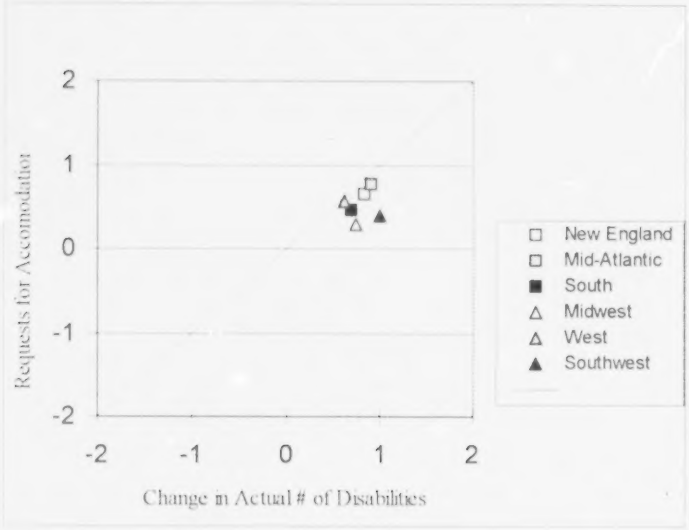
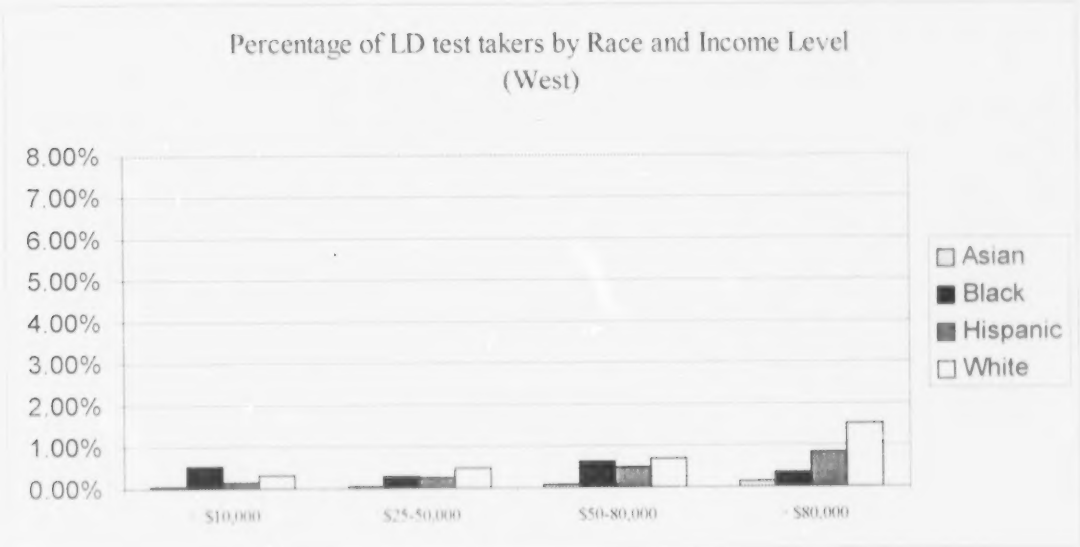
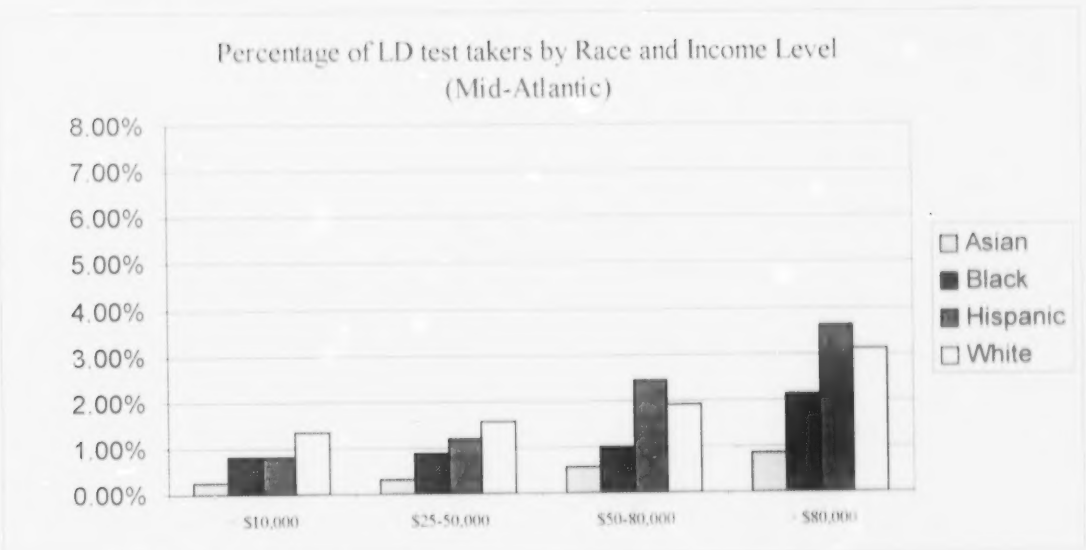
Figure 1. Change in Requests for Accommodations and Actual Disabilities (IEP 504)

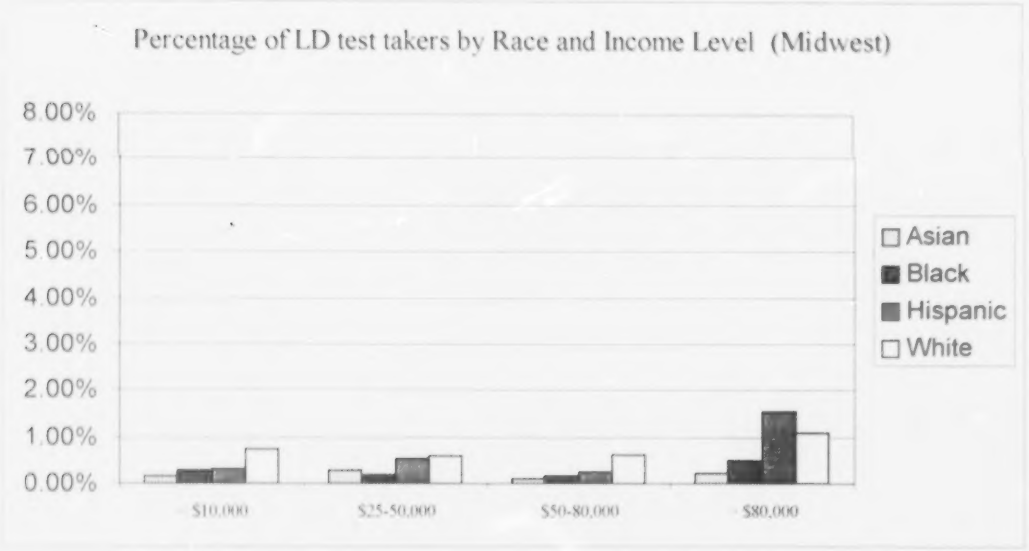


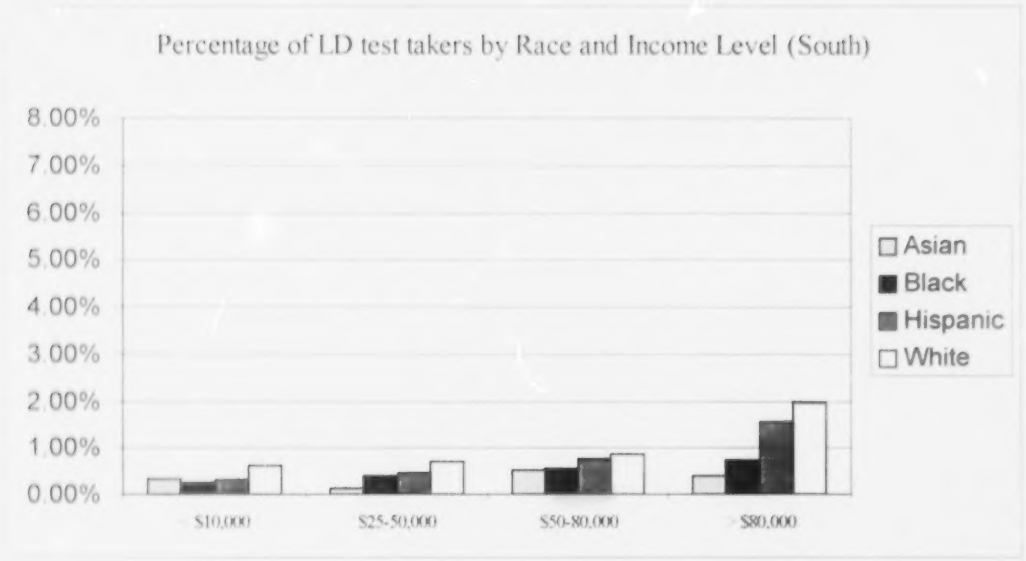
Note: Changes are based on mean ratings. (2=decrease more than 50%, 1=decrease 10-50%, 0=no increase or decrease, -1=increase 10-50%, -2=50% decrease)

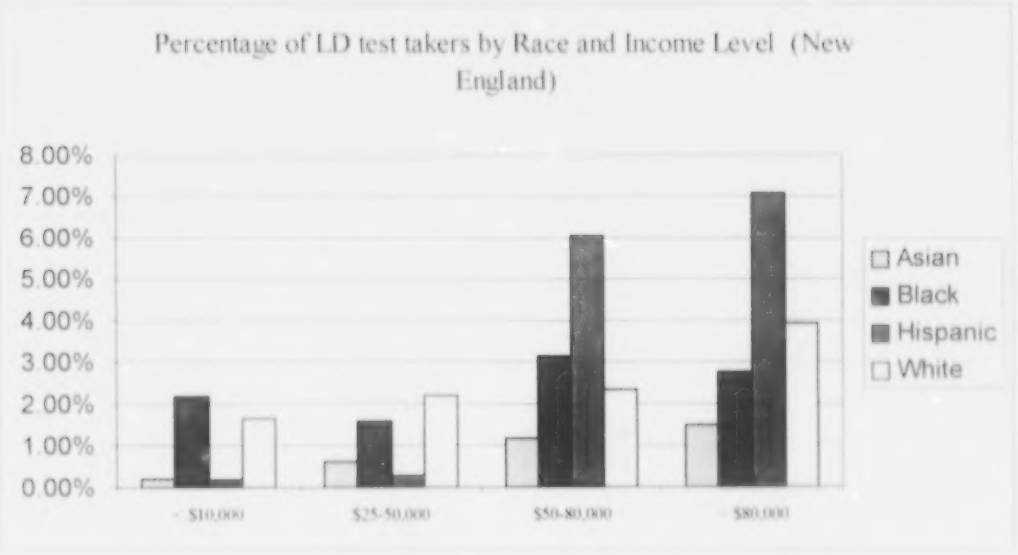
Appendix A

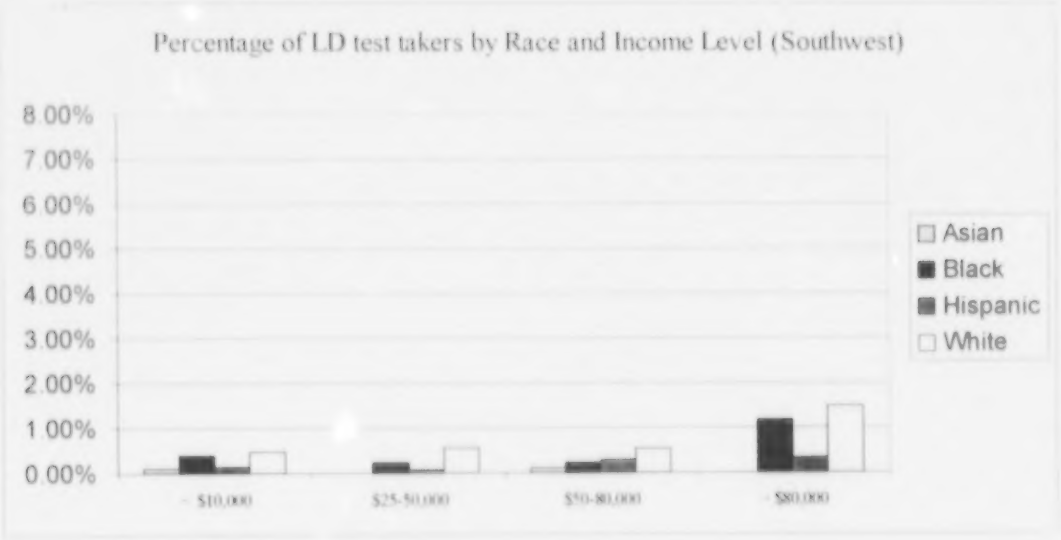

Percentage of LD test takers by Race and Income Level
(West)
8.00%
7.00%
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
$10,000
$25-50,000
$50-80,000
$80,000
Asian
Black
Hispanic
White


Percentage of LD test takers by Race and Income Level
(Mid-Atlantic)
8.00%
7.00%
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
$10,000
$25-50,000
$50-80,000
$80,000
Asian
Black
Hispanic
White


Percentage of LD test takers by Race and Income Level (Midwest)
8.00%
7.00%
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
$10,000
$25-50,000
$50-80,000
$80,000
Asian
Black
Hispanic
White


Percentage of LD test takers by Race and Income Level (South)
8.00%
7.00%
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
$10,000
$25-50,000
$50-80,000
$80,000
Asian
Black
Hispanic
White


Percentage of LD test takers by Race and Income Level (New England)
8.00%
7.00%
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
Asian
Black
Hispanic
White


Percentage of LD test takers by Race and Income Level (Southwest)
8.00%
7.00%
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
Asian
Black
Hispanic
White